

the yellow grains. It is regretted that a sketch of the two embryos was not made before the grain was placed in the earth for further growth. Out of very many thousands of germinating grains of corn, this is the only one showing diembryony that has come to my notice.

RUTGERS COLLEGE, May 4, 1901.

REVIEWS

A work that is sure to play an important part in popularizing botanical studies on the Pacific Coast is the recently published "Flora of Western Middle California" * by Dr. Willis Linn Jepson, Assistant Professor of Botany in the University of California. This is a carefully written and attractively printed descriptive manual, with keys to the families, genera, and species. In many species a considerable range of variability is recognized, especially in vegetative characters, under conditions which are definitely named. New species and varieties are described in various genera. In the matter of nomenclature, it is not wholly obvious just what considerations have determined the choice of generic names. The nomenclature is evidently not that of Berlin, Kew, Harvard, the Rochester Code, or of the Flora Franciscana. With considerable allowance for the inherent difficulties of making one's practice seem always consistent and logical to another, it may be said that Professor Jepson's selection of names has the appearance of being an arbitrary compromise between the so-called "conservative" and "reform" tendencies. The influence of the American principle of "Once a synonym, always a synonym" is doubtless to be recognized in the substitution of *Tumion* Raf. for *Torreya* Arn., *Osmaronia* Greene for *Nuttallia* T. & G., and *Xylothermia* Greene for *Pickeringia* Nutt. To the "priority of place" idea is evidently to be attributed the acceptance of *Tissa* Adans. in the place of *Buda* Adans., while simple priority of publication is apparently responsible for the adoption of *Panicularia* Fabric. for *Glyceria* R. Br., *Razoumofskyia* Hoffm. for *Arceuthobium* Bieb., *Koellia* Moench for *Pycnanthemum*

* Jepson, W. L. A Flora of Western Middle California. 8vo. Pp. iv + 625. 16 Ap. 1901. Encina Publishing Co., Berkeley. Price \$2.50.

Michx., *Boelia* Raf. for *Downingia* Torr., *Ptiloria* Raf. for *Stephanomeria* Nutt., etc. In these changes from the usage of the "Botany of California," there is no suggestion of the fifty-year limit proposed by the Berlin botanists and there is little evidence of mercy toward names which, according to some writers, have become so consecrated by long usage as to be out of the reach of modern nomenclatural legislation. Yet several generic names equally vulnerable, like *Capsella* Medic., *Echinocystis* T. & G., and *Dicentra* Bernh., are retained. But these possibly await modification in the second edition, which the manifest merits and popular qualities of the work will doubtless soon make a necessity. [M. A. H.]

CORRESPONDENCE

"A SIMPLE DYNAMOMETER"

The discussion of this particular apparatus would not deserve more space, did not the criticism involve a principle applicable to a number of instruments for measuring the force exerted by plants. In his reply* to my former letter, Dr. Richards implies that I misunderstood his experiment; rather, I think, he has missed the point of my objection. I had no thought of criticizing his device because it does not measure the force of imbibition in all directions. The difficulty is that the proposed dynamometer does not register correctly *any* component of the force of swelling, for the simple reason that the spring scale is not adapted to do it. Gravitation can act through an indefinite distance and the weight in the pan descends until the distortion of the spring is as great as the force acting can produce. In swelling, on the contrary, the force to be measured acts through a very limited distance only, and when the limit of its thrust is reached the index stops, whether it indicates an ounce or a ton. The principle is that distortion of a system, however registered, can never be used to measure correctly any force, unless the possible distortion is greater than that necessary to produce the maximum registration of the instrument.

The caution regarding overloading, therefore, is not pertinent,

*TORREYA, I: 48. Ap. 1901.